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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,244	04/23/2004	Tsutomu Horie	040186	3243

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KRATZ, QUINTOS & HANSON, LLP
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EXAMINER

AKANBI, ISIAKA O

ART UNIT	PAPER NUMBER
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2886

MAIL DATE	DELIVERY MODE
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01/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/709,244

Applicant(s)

HORIE, TSUTOMU

Examiner

Isiaka O. Akanbi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7 and 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-7 and 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amendment

The amendment filed on 31 October 2007 has been entered into this application. Claim 3 has been canceled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-7 and 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toyama (2002/0194576 A1) in view of Sawada et al. (4,433,911), and further in view of Tsudaka (6,014,456)

Regard to claim 1, Toyama discloses a reticle comprising:

a device pattern formed in an exposure area; and wherein said evaluation pattern has a different shape than said device patterns, wherein said evaluation pattern includes a defect (figs 1 and 10)(see Abstract)(page 1, par. 0001, 0004 and 0006).

Toyama is silent regarding the limitation of evaluation patterns formed in an area different from said exposure area, for evaluating transferability onto a transfer target of any defect in said exposure area and are arranged by types of said defect.

Sawada (see abstract, line 3-7) teaches of evaluation pattern(s) formed in an area different from said exposure area, for evaluating transferability onto a transfer target of any defect in said exposure area.

It would have at least been obvious to one having ordinary skill in the art at the time of the invention was made to modify Toyama by incorporating an evaluation pattern(s) formed in an area different from said exposure area, for evaluating transferability onto a transfer target of

any defect in said exposure area for the purpose of altering or isolating a segment of the photomask, as per the teachings of Sawada.

Additionally, Toyama discloses the limitation wherein said evaluation patterns are provided corresponding to types of defects possibly generated in said exposure area (page 1, par. 0006)(page 2, par. 0041)(page 3, par. 0047). However, Toyama when modified by Sawada, lacks the "arranged by types of said defect" evaluation patterns as in the instant claimed invention. Tsudaka teaches arranging a plurality of evaluation points/patterns (see abstract)(col. 2, lines 22-col. 3, line 15).

Therefore it would have at least been obvious to one having ordinary skill in the art at the time of the invention was made to provide evaluation patterns that are arranged by types of said defect for the purpose of enabling calculation of a mask pattern so as to give a resist pattern close to the design pattern and thereby produce a high performance device with a high yield, as taught by Tsudaka.

As to claim 2, Toyama also discloses the limitation wherein said evaluation pattern has a defect of which transferability onto said transfer target being already evaluated (page 1, par. 0001).

As to claims 4 and 5, Toyama further discloses wherein a plurality of said evaluation patterns individually having different defect sizes are arranged by said types of defect and wherein said evaluation patterns, respectively having an untransferable largest defect size, are arranged by said types of defect (page 3, par. 0047 and 0049).

As to claim 6, Toyama and Sawada disclose everything claimed, as applied to the claim above, in addition Toyama also discloses wherein said type of said defect is at least any one of chipping, projection, short-circuiting, line breakage, isolated residue and isolated pinhole (page 3, pars. 0031, 0038-0040).

Regard to claims 7, 13 and 15, Toyama discloses a reticle inspection method comprising of a pattern forming step for forming a device pattern in an exposure area, a defect inspection step for inspecting presence or absence of any defect in said exposure area on said reticle and an evaluation step for evaluating transferability onto said transfer target of any defect detected in said defect inspection step, based on said detected defect and said evaluation pattern, and wherein said evaluation pattern is a pattern having at least one defect which is possible to be generated in said exposure area, and the method further comprises a preliminary evaluation step for evaluating, prior to said pattern formation step, the transferability of said evaluation

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pattern onto said transfer target (figs 1 and 10)(see Abstract)(page 1, par. 0001, 0004, 0006, 0042-0046, 0066 and 0070)(page 1, pars. 0025, 0029 and 0039).

Toyama fails to specify forming evaluation pattern(s) for evaluating transferability of any defect onto a transfer target in said exposure area, in an area different from said exposure area on the same reticle and arranging said evaluation patterns by types of said defect.

Sawada (see abstract, line 3-7) teaches of evaluation pattern(s) formed in an area different from said exposure area, for evaluating transferability onto a transfer target of any defect in said exposure area.

Therefore it would have at least been obvious to one having ordinary skill in the art at the time of the invention was made to modify Toyama by incorporating an evaluation pattern(s) formed in an area different from said exposure area, for evaluating transferability onto a transfer target of any defect in said exposure area for the purpose of altering or isolating a segment of the photomask, as per the teachings of Sawada.

Additionally, Toyama discloses the limitation wherein said evaluation patterns are provided corresponding to types of defects possibly generated in said exposure area (page 1, par. 0006)(page 2, par. 0041)(page 3, par. 0047). However, Toyama when modified by Sawada, lacks the "arranged by types of said defect" evaluation patterns as in the instant claimed invention. Tsudaka teaches arranging a plurality of evaluation points/patterns (see abstract)(col. 2, lines 22-col. 3, line 15).

Therefore it would have at least been obvious to one having ordinary skill in the art at the time of the invention was made to provide evaluation patterns that are arranged by types of said defect for the purpose of enabling calculation of a mask pattern so as to give a resist pattern close to the design pattern and thereby produce a high performance device with a high yield, as taught by Tsudaka.

As to claims 9, 14 and 16, Toyama further discloses the limitations wherein said evaluation step comprising a comparison step for comparing any defect detected in said defect inspection step with said evaluation pattern and a correction judging step for judging necessity of correction of said detected defect based on a comparative result obtained from said comparison step (page 1, pars. 0006, 0012, 0015, 0018)(page 2, pars. 0034)(page 6, par. 0109).

As to claims 10 and 12, Toyama also discloses wherein, in said pattern forming step, said evaluation patterns corresponding to types of defects possibly generated in said exposure

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area on said reticle are formed on said reticle by types of said defect (page 1, par. 0006)(page 2, par. 0041)(page 3, par. 0047) and in said comparison step, any defect detected in the defect inspection step is compared with said evaluation patterns corresponding to said types of defect and respectively having an untransferable largest defect size (page 3, par. 0047 and 0049)(col. 6, line 22-39) .

As to claim 11, Toyama further discloses an information entering step (s110) for entering an information on any defect judged, in said correction judging step, as being in need of correction (fig.1)(page 4, par 0069 and 0073).

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references listed in the attached form PTO-892 teach of other prior art reticle inspection apparatus/method that may anticipate or obviate the claims of the applicant's invention.

Response to Arguments

Applicant's arguments with respect to claims 1, 2, 4-7 and 9-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isiaka Akanbi whose telephone number is (571) 272-8658. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur R. Chowdhury can be reached on (571) 272-2287. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isiaka Akanbi

January 19, 2008



TARIFUR CHOWDHURY
SUPERVISORY PATENT EXAMINER